Performance-based contracting in business markets

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Abstract

The aim of this Special Issue is to advance our understanding of performance-based contracting (PBC) in business markets. PBC has the potential for aligning incentives among buyers and sellers and fostering innovation. This paper critically reflects on extant research developments in order to develop a systematic knowledge map of PBC research. On that basis four major research gaps are identified and addressed, drawing out specific avenues for further PBC research. The knowledge map is also used to illustrate the focus and main arguments of the articles featuring in this Special Issue.

Keywords

Performance-based contracting; contracts; servitization; relationships; integrated solutions; procuring complex performance

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1. Introduction

Existing literature reviews on performance-based contracting (PBC) have shown a dramatic increase of scientific contributions being published in that area over the last decade (e.g. Selviaridis and Wynstra, 2015; Hypko et al., 2010). Recent studies published in Industrial Marketing Management (IMM) have highlighted the increasing importance of ´servitization´, an adjacent topic to PBC, with particular emphasis on the academic discourse of service offerings, service pricing, and contracting for services (e.g. Brax and Visintin, 2016; Kowalkowski, et al., 2015; Ulaga and Loveland, 2014; Roehrich and Caldwell, 2012). This Special Issue (SI) builds on these contributions and addresses explicitly the contractual aspects of servitization and the role of PBC more specifically. The purpose of this article is not only to provide an overview of the SI papers, but also to frame the topic and to suggest directions for future research on PBC on the basis of remaining knowledge gaps.

A focus on PBC is needed due to the increasing stream of research on service business development (servitization) across many industries and the use of numerous synonymous terms to describe the PBC phenomenon such as ´performance (-based) contracting´, ´performance-based logistics´, ´outcome-based contracting´, ´availability contracting´, ´pay for performance´, and ´performance-based service acquisition´. Thus, it is not surprising that multiple definitions of PBC exist in the literature stressing aspects such as definition of performance in terms of outputs and outcomes, the design of incentive payment systems, financial risks and risk transfer to suppliers, and asset ownership issues (e.g. Brucker and Stewart, 2011; Hypko et al., 2010; Kim et al., 2010).

As PBC links service or integrated solution providers with their industrial customers, it is also of importance for the academic discussion and theory development in industrial marketing (IM) and its 'counterpart' in operations and supply management (OSM). PBC is a promising contractual mode which enables business partners to adopt ´use rather than own´

strategies. Thus, PBC can be seen as an approach that represents a supply chain application of the service-dominant-logic theory (Randall et al. 2010). PBC is also of high relevance to practice, as (complex) service offerings are increasingly important to the world-wide economy. This can be illustrated with recent service offerings of space freight transport (e.g. Space X company), pay per use of aero engines (e.g. the often cited Rolls Royce aero engine support-case), full service offerings for machinery and equipment (cp. the discussion of outsourced manufacturing), or full service fleet and mobility management (helicopter to forklift trucks) (a.o. Randall et al., 2014; Kleemann, 2013;, Seedhouse, 2013). These examples compare with the B2C market and examples such as Uber (mobility), AirBnB (lodging), Dim Dom (toys), GirlMeetsDress (clothes), movies (Netflix), parking spaces (parkatmyhouse), land (Shared Earth) and many other companies and offerings using a ´use/access rather than own´ strategy (Earley, 2016). It seems necessary to have a closer look at relevant contractual arrangements to analyze the impact of that strategy in the industrial and manufacturing context (Malhotra and Van Alstyne, 2014).

Existing research appears to converge on some common denominators and collectively defines PBC as a contracting approach whereby payment to the provider (supplier) is tied either partially or fully to its performance (Selviaridis and Wynstra, 2015). However, the literature is less in agreement about what constitutes 'performance' with some studies suggesting that performance includes both service outputs and outcomes (e.g. Martin, 2007; Axelsson and Wynstra, 2002), while others referring only to outcomes (e.g. Ng et al., 2013). The majority of the literature in fact fails to explicitly define clearly 'outputs' and 'outcomes' and comments on their differences (for a notable exception see Martin, 2007). In this introductory article, PBC is defined as a contract which provides incentives for business outcomes. This means that a service provider is compensated according to the contribution

made to the business results of the service buyer and pricing depends (at least to a certain extend) on the service performance level that is actually rendered (Figure 1).

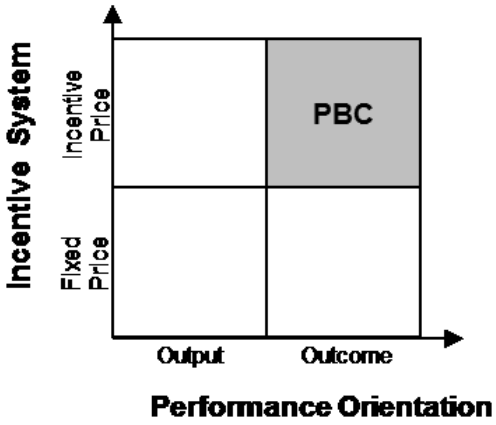

Fig. 1. A definition of PBC

The remainder of the paper is structured as follows. The upcoming Section 2 discuss extant literature on adjacent areas of system selling, integrated solutions, and procuring complex performance, before positioning PBC research in IM and OSM. The section cumulates in proposing a PBC framework. Next, the papers of the SI and the existing PBC literature are mapped according to the framework, which also leads to the identification of remaining research gaps. These findings are briefly discussed and specific suggestions for future research avenues are provided in the subsequent conclusion section.

2. Performance-based contracting research: State of the art

This section reviews the state of the art of PBC research. We first discuss the relevance of PBC to the wider IM and OSM literatures, addressing adjacent concepts such as solutions and systems selling, product-service systems and procuring complex performance (PCP). Key studies which explicitly focus on PBC within these adjacent areas are highlighted. Finally, we provide a brief account of the current status of extant PBC literature

across disciplines and propose an overarching framework of PBC research to further drive systematic research efforts to inform academics and practitioners alike.

2.1. PBC relevance to industrial marketing and purchasing

'System selling' or 'systems marketing' as pioneered by the industrial marketing literature and dating back to the 1960s (Mattson, 1973) form the roots of solutions provision. System selling is defined as the provision of products and services as integrated systems that provide solutions to client's operational needs (Page and Siemplenski, 1983). Later, industrial marketing management research heralded the move from 'system selling' to 'solution selling'. Solution selling encompasses the complete activity chain for a client, creating a new role for the seller to become a 'strategic consultant' able to foster the client's value creation processes (Cova and Salle, 2007). Whereas systems selling strategies focus on answering the client's operational needs (Azimont et al., 1998), solution selling strategies develop the client's core business. The industrial marketing literature identifies two contrasting pure forms of solutions providers: systems sellers and systems integrators. Systems sellers are vertically integrated organizations producing all (or most) components in-house or in collaboration with a group of firms. Systems integrators are responsible for integrating goods and services supplied by multiple vendors and service providers (Davies, 2004; Prencipe et al., 2003).

Extant literature in IM and OSM literatures and adjacent areas offer a myriad of labels describing solution offerings as 'integrated solutions' (Davies et al., 2006), 'customer-centric business solutions' (Galbraith, 2002), 'product service systems' (Pawar et al., 2009), and 'customer solutions' (Sawhney et al., 2004). Following Tuli et al. (2007), these labels consist of three common key characteristics: (i) a solution involves a combination of goods and services, (ii) which are customized to address particular client's requirements, (iii) and

products and services – and the related tasks - in a solution must be integrated to work together. These labels characterize the 'service-dominant logic' (Vargo and Lusch, 2004) and the move towards 'servitization' (Vandermerwe and Rada, 1988) for organizations from different sectors. Beyond contract-oriented theories, the service dominant logic (SDL) of Marketing is a key perspective employed to study PBC. It mainly stresses the role of relational governance mechanisms such as trust, collaboration, open communications and information sharing to manage the co-production of service outcomes between the buyer, supplier and other supply chain partners (e.g. Ng et al., 2009). As y mentioned earlier, PBC can be seen as the approach that represents a supply chain application of service-dominant-logic theory (Randall et al., 2010).

The shift towards integrated solutions mainly started with manufacturing firms seeking to expand their revenue income and then it appeared in sectors focused on delivering complex products and systems, so called CoPS (Hobday, 2000). For instance, the aero-engine manufacturer Rolls Royce offers not only aircraft engines to its customers, but also earns revenues from providing 'total care' solutions through 'power by the hour', offering services throughout an engine's lifecycle to ensure that customers pay for a product in use. Extant research regarding solution provision has investigated this concept from the perspective of either the supplier (Galbraith, 2002), the buyer (Kapletia and Probert, 2009), or the evolving inter-organizational relationship between supplier and buyer. Studies adopting the latter perspective have tended to focus on value co-creation from a consumer goods (Prahalad and Ramaswamy, 2004) and manufacturing industries perspectives (Payne et al., 2008). Value for both, provider and customer, is created by enhancing operating efficiency, enabling market expansion, and mitigating risks throughout the asset's lifecycle (Cornet et al., 2000).

Lewis and Roehrich (2009) argue that although there is an increasing number of studies exploring this transition towards servitization and integrated solutions, the majority

focuses on challenges faced by the provider. Hence, fewer studies focused on challenges associated with this transition from the buyer's side to explore issues around 'procuring complex performance' (PCP) (Caldwell and Howard, 2010). In other words, PCP studies explore the challenges customers of bespoke product-service solutions face (Caldwell et al., 2009). PCP is defined as "inter-organizational arrangements that are characterized by significant levels of performance complexity (i.e. must include numerous knowledge intensive activities) and infrastructural complexity (i.e. must include substantial bespoke or highly customized hardware and software elements)" (Lewis and Roehrich, 2009, p.128). PCP investigates the inherent challenges and complexities of managing operations in environments that have complex infrastructural and performance requirements (Caldwell and Howard, 2014). At the heart of PCP is the notion of adapting to the dynamics of emergent customer requirements particularly across capital intensive sectors such as construction, healthcare, aerospace and defense (Hartmann et al., 2014; Roehrich and Lewis, 2014). Complex performance implies the bundling of product and infrastructure with long-term, often multi decade service support requirements, a combination which produces a number of significant decisions, for instance, through-life asset management, product upgrade strategies, cost and risk modelling, new forms of contractual control and adoption of new business models.

Contracting capabilities and associated mechanisms are inherently important for managing complex performance of integrated products-services or solutions (Kreye et al., 2015; Spring and Araujo, 2014). A pocket of IM and OSM studies, albeit relatively limited in number, stresses the role of PBCs for designing and managing exchange relationships oriented towards performance outcomes (e.g. Caldwell and Howard, 2014). In brief, this literature emphasizes the need to clearly specify performance in terms of outcomes and end customer value (Datta and Roy, 2011). The achievement of key performance indicators

(KPIs) is tied to the payment mechanism so as to align supplier incentives to those of the buyer, and various approaches to incentive systems design have been examined in the literature (e.g. Glas et al., 2013). Incentive alignment appears to be more problematic at the supply chain level and extant literature specifically reports on challenges of deploying PBCs in the service provider's supplier relationships, focusing on issues such as information asymmetries, lack of information sharing, and inability to transfer risk to sub-suppliers (e.g. Selviaridis and Norrman, 2014; Kleeman and Essig, 2013).

2.2.A snapshot of PBC research across disciplines

On the basis of the discussion of the relationship between PBC and the IM and OSM literatures that address relevant concepts (e.g. solutions and PCP), this section outlines PBC research in a broader context. Specifically, it discusses PBC research in contexts beyond the narrow scope of business studies (e.g. health, public administration, transportation, energy and environmental studies) and develops an overarching framework of PBC research.

In terms of theoretical perspectives underpinning PBC research, a recent review by Selviaridis and Wynstra (2015) suggests that PBC studies employ mostly contract theories emphasizing extrinsic, economic incentives and contract design issues to combat potential opportunistic behavior. This certainty comes as no surprise given the inherent emphasis of PBC on incentivizing supplier performance attainment and improvement. Agency theory appears to be frequently employed to tackle performance specification and risk sharing aspects of PBC deals (Datta and Roy, 2011; Kim et al., 2007). Transaction cost economics has also been applied along with property rights and management control perspectives, though to a lesser extent, to examine issues such as asset ownership and investment incentives (e.g. Bertone and Meesen, 2013; Hooper, 2008). As a complement to the above theories, an information economics perspective has also been employed to empirically

examine information asymmetries in relation to the adoption of PBC in successive buyer-supplier dyads in supply chains (e.g. Kleemann and Essig, 2013).

It should be noted, however, that a large body of cross-disciplinary PBC research remains under-theorized as many studies in domains such as health and transportation engineering appear to focus on practical implementation aspects and overall a striking lack of theories exist in PBC research (142 out of 241 analyzed contributions, or approximately 60%, do not mention a theory at all) (Selviaridis and Wynstra, 2015). This reflects a more generic gap in existing PBC research, which appears to lack a sound theoretical or conceptual grounding (referred to as Gap A). As an example, the extant literature has yet to establish a strong theory-based explanation of how performance-based incentives instigate innovation in service design and delivery. Future studies may want to adopt theories that go beyond often used theoretical perspectives and explore, for instance, the behavioral aspects of individual contract managers using PBC.

However, Gap A does not imply that PBC research already reached a high maturity in empirical research. PBC research collectively employs a variety of methods and Selviaridis and Wynstra (2015) report that both quantitative and qualitative methods have been adopted, including mainly mathematical modelling and case-based research. Mixed method designs, literature reviews and qualitative interview studies also feature in the extant literature (e.g. Guo and Ng, 2011; Gransberg, 2010; Hypko et al., 2010). It is however surprising that survey, experimental or simulation research designs have been much less frequently used given their relevance to examining issues such as risk preferences and behavioral responses to incentive payments (e.g. Maile and Collins, 2012; Meezan and McBeath, 2008). It is suggested that the use of these empirical methods opens up several opportunities for PBC scholars that would be worth exploring (e.g. more reliance on survey or experimental evidence). However PBC research is already empirical in nature (Selviaridis and Wynstra,

2015) and hence the limited use of certain research methods (e.g. experiments) cannot qualify as a research gap in a broad sense.

Next, existing research refers to various analytical levels. Overall, the cross-disciplinary PBC literature can be classified in terms of the three main levels of analysis: the firm (which also includes the level of individual managers within organizations), the (buyer-supplier) dyad, and the supply chain/network level. The latter also includes studies of outcome-based contract design and management in service triads of buyers, suppliers and end customers (Wynstra et al., 2015). However, PBC research concerning healthcare and social welfare services appears to have only implicitly considered the perspective of the end customer/patient in relation to incentive mechanism design (e.g. Lu and Donaldson, 2000). Research at the firm level can either take a buyer or a service provider perspective although it seems that the majority of studies refer to the buyer-supplier dyad as its primary unit of analysis (Selviaridis, 2011). This is why firm-level (buyer or supplier) research on PBC (Gap B) as well as triadic and network analyses of the phenomenon (Gap C) bear a high potential for future research. For instance, the extant PBC literature has yet to examine whether there are any links between extrinsic financial incentives that are included in the contract, and those offered to employees within the supplier firm. In a similar vein, existing research has underplayed the interactions between extrinsic 'pay for performance' incentives and intrinsic ones of supplier employees (e.g. identification with a common purpose and autonomy of action), and their effects on performance improvement and customer satisfaction.

In addition to employing different analytical levels, extant literature also appears to stress a conceptualization of PBC as a *process* comprising distinct stages i.e. adoption and design of outcome-based contracts, PBC execution and ongoing management and PBC finalization which considers all activities and processes related to re-tendering and/or re-designing contracts after the end of the exchange, or to the dissolution of contractual

relationships (e.g. Selviaridis and Norrman, 2015; Behn and Kant, 1999). Admittedly, such a PBC process perspective differs very little from more generic contract design and management activities emphasized in the broader contracting literature (e.g. Lumineau et al., 2011; Argyres and Mayer, 2007; Eisenhardt, 1989). Overall, the PBC literature appears to have focused mainly on the design and implementation of PBC e.g. factors influencing the design of contracts, barriers of implementation, and the process steps to implement a PBC. Existing research appears to have put less emphasis on how PBCs are actually managed and re-designed or adapted over time to allow for changing requirements and environmental circumstances, and how termination of PBCs is managed to facilitate the dissolution of buyer-supplier relationships or facilitate the transition to another service provider. The above issues in relation to the execution and finalization phases of PBC are identified as another major area for future research (Gap D).

Taken together, the four research gaps could be structured according to the contracting process stages, namely initiation, execution and finalization. Although these phases might be named differently in the literature (see van Weele, 2005; van der Valk and Rozemeijer, 2009), relationship and contractual phases can be subsumed in these main three phases (e.g. Zheng et al., 2008; Essig and Batran, 2005).

Another classification criterion we employ is the perspective taken by the researchers while analyzing PBC. The various perspectives of the involved parties are (i) firm level (which also incorporates the perspective of individual managers), either on the buyer or seller side; (ii) dyadic perspective, considering the buyer-seller relationship; (iii) triadic/network perspective, referring to a business network of at least three involved entities. Together with the basic understanding of PBC (emphasis on outcomes and incentives), the contracting process and the perspectives form a framework against which the identified research gaps are mapped (Figure 2).

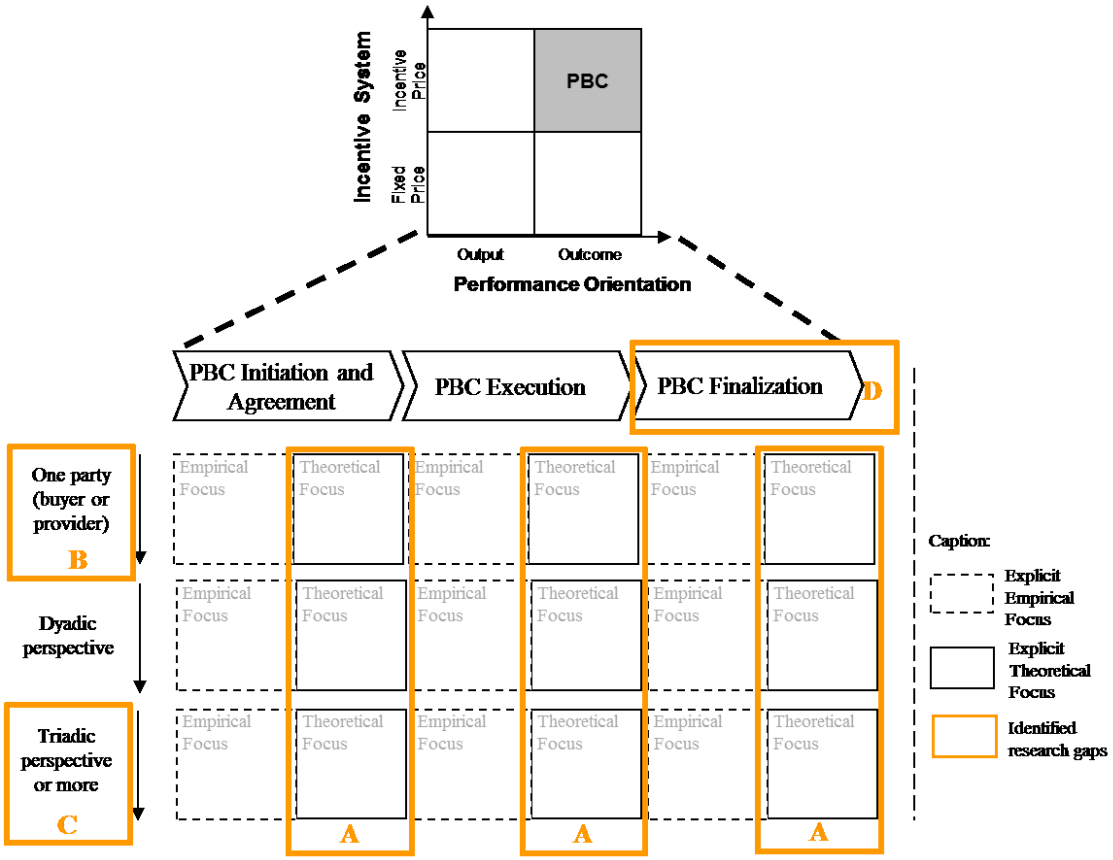

Fig. 2. Broad knowledge gaps in PBC research

3. Focus of the special issue articles

Following the review of PBC (-related) literature, this section sheds light on the specific contributions that feature in this SI and their focus and key arguments. The following sections provide a brief summary of these papers. Each article offers a different focus on PBC such as focusing on incentives, outcomes, or performance challenges. In addition, the articles adopt different levels of analysis; three articles adopt a dyadic perspective and two a triadic one. Three of the five SI articles analyze topics in the area of PBC initiation and agreement, while the remaining two address PBC execution. The papers are presented in the following order – first papers adopting a dyadic perspective, then papers addressing a network/triadic level. The papers are additionally ranked in terms of the stage of the PBC process they are related to (see Figure 3).

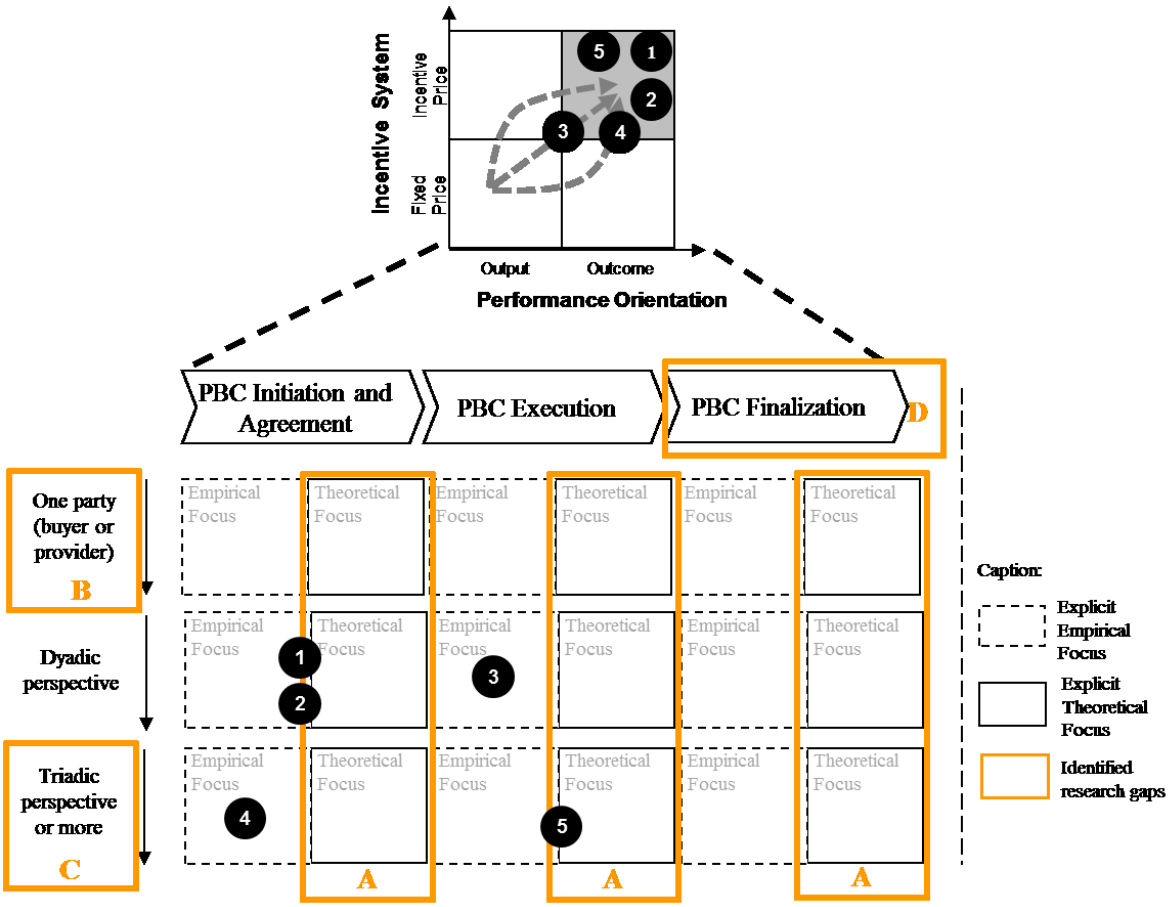

Fig. 3. Systematization of the SI articles according to the PBC research framework

Regien Sumo, Wendy van der Valk, Arjan van Weele, and Geert Duysters contribute to the understanding of how PBC supports supplier-led innovation with their paper titled "Performance-based contracts to foster Innovation in outsourced service delivery" (Paper No. 1). That paper explores two cases of IT outsourcing via PBC and suggests that a high-degree of outcome-orientation gives the required autonomy to the supplier which allows the implementation of innovation in the execution of the service delivery, while incentives (rewards linked to performance) provide the motivation to do so. The paper explores the importance of the construct of granted autonomy which contributes to the wider PBC topic of the alignment of interests to improve performance via innovation. The paper provides

implications for PBC agreement (contract design, contract philosophy) and how business partners in a PBC relationship should collaborate.

Another paper which analyzes the roles of the buying firm in PBC is entitled "Outcome Attributability in Performance-based Contracting: Roles and Activities of the Buying Organization" and is authored by Fabian Nullmeier, Finn Wynstra, and Erik van Raaij (Paper No. 2). The paper suggests that buying firms have an important part to play in co-producing service outcomes. Outcome uncertainty is introduced insofar as outcomes are only partly a function of supplier effort and inputs. This paper explores the construct of "outcome attributability" by investigating two case studies (a train operator and a university hospital) and interviewing personnel at both the buying and supplying organizations. Roles and contractual activities are assessed in both cases and lead to a conceptual model which contributes to the understanding of which external factors, buyer roles, and buyer engagement in monitoring and coordination, impacts on outcome attributability.

Johanna Liinamaa, Mika Viljanen, Anna Hurmerinta, Hanna Luotola, Maria Ivanova-Gongne, and Magnus Gustafsson take a different perspective for their paper entitled "Performance-based and functional contracting in value –based solution selling" into account, as their work links PBC to marketing literature (Paper No. 3). Their comprehensive work is based on a 14-month research project, observations from 144 meetings and workshops, and the analysis of multiple data including >800 e-mail correspondences between the different stakeholder groups involved in the project. Their findings support the identification of implementation barriers, including legal-technical contract design issues. Outcome-orientation of PBC (functional contracting) is seen as an appropriate solution to overcome the barriers arising from deficient pre-contractual integration. The paper's main contribution is a process model that proposes an appropriate pricing and selling strategy

procedure (e.g. including Memorandum of Understandings) which could be used to overcome implementation barriers in the collaboration process in the PBC relationship.

While the previous papers adopt a dyadic perspective, Stefanos Mouzas's paper entitled "Performance-based contracting in long-term supply relationships" investigates how firms and their supply chains agree upon performance targets and the incentive and compensation mechanisms (Paper No. 4). For this purpose, the research applied a qualitative approach analyzing six cases with interviews of 83 key individuals, from board members to logistics specialists. Together the cases form a supply relationship network between two service providers, two manufacturers, and two retailer companies, which is used to analyze how "genuine consent" about performance targets and incentives is emerging in a PBC.

Finally, the paper by Mickey Howard, Zhaohui Wu, Nigel Caldwell, Fu Jia, and Christian König offers in-depth insights into the dynamics of PBC in the defense industry in their paper entitled "Performance-based Contracting in the Defense Industry: Exploring Triadic Dynamics between Government, OEMs and Suppliers" (Paper No. 5). This study adopts a longitudinal perspective and describes and analyzes a 30-year timeframe of a business relationship in the defense industry. The paper provides a triadic perspective and analyzes the dynamics in the principal-agent roles over time, while executing the contract(s). The longitudinal study suggests that the design of incentive systems should also consider long-term and less direct financial measures, such as the market share of the supplier. It also argues that outcome-orientation must be elaborated to develop a more nuanced understanding of PBC that goes beyond a simple focus on transferring risks. Another important contribution is the identification of a sequential *gauden* and *iungen* strategy over time, which is explained in detail in their paper.

4. Discussion: Remaining PBC research gaps and future research avenues

Overall, the five contributions of this SI clearly address incentive price mechanisms and outcome performance. Two papers address strategies and consent building to overcome implementation barriers to PBC. Stefanos Mouzas's paper places a stronger focus on consent about performance targets, while the paper by Johanna Liinamaa and colleagues provides a comprehensive analysis of value-based outcomes and pricing (incentive) mechanisms. The above suggest that all papers fit into the PBC quadrant of our performance-incentive matrix (Figure 1).

Considering the use of theories and the empirical methods, all papers in the SI are based on case study research. Although the five contributions analyze a large amount of interviews and other primary and secondary data sources, some of which stretch over a long time period, the papers' core is qualitative in nature. This is partly in line with the findings from a recent literature review on PBC, which found that case studies are one of the most prominent research methods in PBC research besides mathematical modelling (Selviaridis and Wynstra, 2015). Quantitative empirical research including surveys and field experiments are less frequently used in PBC studies. This is a bit surprising given the potential of experimental designs to address behavioral aspects (e.g. information processing capacity and risk attitude of individual managers) relevant to inter-firm contracting (e.g. see Weber and Mayer, 2011). Regarding theoretical perspectives, the papers are grounded on key theories such as agency theory and management control theory. That means that these papers contribute towards closing the identified research Gap A. However, there is still a need for further quantitative, theory-testing work on the PBC phenomenon.

Considering the adopted perspectives, three papers focus on the buyer-supplier dyad, one paper analyzes triadic relationships (Howard et al.) and one paper (Mouzas) takes a network perspective. This corresponds partly to the findings from the literature review, as PBC is often analyzed considering both sides of the dyad the buyer and the provider

(Selviaridis, 2011). The majority of research on service supply chain relationships is based on a dyadic perspective (Selviaridis and Norrman, 2014). Therefore, it would come as no surprise to recommend that future research puts more emphasis on firm-level studies (Gap B). On the other hand, two papers adopted a triadic or network perspective clearly addressing Gap C, even if it is agreed that several questions still remain open. Prospective fields of interest remain e.g. in improving the understanding of how PBC links to the buying firm's supply strategy. One could argue that there is not actually "one" (functional) purchasing strategy, instead strategies are formulated on the category level (Hesping and Schiele, 2015). Nevertheless, PBC can serve both as a means of buying a solution as discussed in section 2.1, or as a preferred buying strategy – in any case, the design and implementation of PBC needs to be aligned with a company's strategic sourcing drivers.

From a supplier's perspective, future research should empirically examine how the extrinsic financial incentives offered at the supplier firm translate into financial or non-financial incentives for employees within the firm to motivate them to contribute to customer performance improvement. Such research should also study the interplay of pay for performance incentives with any intrinsic motivations of employees (e.g. Fehr and Falk, 2002) in order to develop a more nuanced understanding of the potential of PBC to motivate supplier-led performance improvements and innovation.

Lastly, many contributions in the literature deal with the process phases of PBC initiation, PBC contract agreement, and PBC execution, while the finalization and termination of a PBC relationship is rarely addressed (e.g. Levin, 2003). Even if the end of a PBC relationship is mentioned in the literature, this is often not in the context of how to further develop the relationship, but, for instance, that the possibility of contract termination is another incentive method (e.g. Hensher and Stanley, 2008). In this SI, two papers adopted a longitudinal approach which contributes to an analysis of the PBC phenomenon across the

stages of the contracting process. Nonetheless, the question whether a PBC contract should be prolonged, adapted (or even changed to another contract type) has been largely underplayed in the literature. PBC is not a new topic, but a scientific interest has re-surfaced during the last decade and empirical research in this areas is still growing. That might be a reason why the literature focuses on the implementation and execution problems, rather than thinking holistically and addressing the PBC finalization phase (see Gap D). Future research should empirically examine how the termination of PBC is managed in practice, and whether the threat of termination can be used as a means to incentivize changes in behaviors for both provider and buyer. In addition, further empirical research is needed to examine how the design of performance-based contracts and associated incentive systems evolves in the context of long-term relationships to reflect exchange- and partner-specific learning (e.g. Mayer and Argyres, 2004). A longitudinal approach would be most appropriate to research such dynamics.

5. Conclusion

This paper presents the state-of-the-art of PBC research and positions the contributions of the five papers forming this SI. The review also highlights remaining research gaps within four major areas and provides specific suggestions for further research avenues to address these gaps. PBC research at the dyadic level is far more prevalent than on a firm level (including research at the level of individual managers) or triadic/network level. This SI on performance-based contracting contributes towards addressing these gaps and advances our understanding of PBC in business markets and its multiple roles such as aligning incentives among supply chain partners and fostering innovation.

Nevertheless, especially PBC in business markets together with the wider economic trend towards “use not own” are interesting future research areas. In the introduction we

highlighted that business markets develop from “buying” to “using”, resulting in a transition from “one time payments” to “subscription” payments – e.g. monthly payments for car sharing / mobility service instead of buying a car. As a result, a fixed cost approach is becoming less viable for OEMs – and they have to find ways of how to share their employment risk with their suppliers. The PBC approach is one solution to transfer the “pay per use” business model adopted in B2C markets to B2B markets.

Overall, PBC research is at an exciting stage of its development, having over the last decade or so increased in maturity and established itself as an important field of study for IM and OSM scholars and practitioners alike. PBC research now needs to push its theoretical and methodological frontiers as outlined by the research gaps identified in this paper. We very much hope that this SI will serve as a basis for further research developments to help build a more generic theory of PBC.

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